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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BEREZNY, NEMA O

ART UNIT PAPER NUMBER

2813

DATE MAILED: 02/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/696,006

Applicant(s)

TU, KUO-CHI

Examiner

Nema O. Berežny

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 1-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 25-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 01282004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-24, drawn to a semiconductor fabrication method, classified in class 438, subclass 620.
- II. Claims 25-30, drawn to semiconductor device, classified in class 257, subclass 700.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the process as claimed can be used to make other and materially different product; such as, the process requires a second conducting layer and a second insulating layer, whereas the device doesn't.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Dan McClure on 2-3-05 a provisional election was made without traverse to prosecute the invention of Group II, claims 25-30. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-24 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 25, 28, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin et al. (6,083,825). Lin discloses a planar insulating layer with contact openings on a substrate having device areas comprised of: a conducting layer (Fig.2E el.202a) having an anti-reflective coating (el.208a) on top surface and patterned to have open areas (el.214) on said substrate (el.200); said planar insulating layer (el.212a) on said patterned conducting layer having said contact openings of varying depths (Fig.2E) to said device areas, said contact openings formed using a single masking and etching step; some of said contact openings extending down to and over edge of said patterned conducting layer within said open areas (Fig.2E) for forming low-resistance contacts to said edge of said patterned conducting layer (col.4 lines 27-38) [**claim 25**].

Lin also discloses wherein a multiple of said contact openings are etched in series along said edge of said patterned conducting layer in said open areas, and wherein said contact openings are elongated normal to said edge of said patterned conducting layer in said open areas to allow for more relaxed alignment tolerances (Fig.2E) **[claim 28]**; and wherein said anti-reflective coating is a material selected from the group that includes silicon oxynitride, titanium nitride, and tantalum nitride, and is deposited to a thickness that minimizes the optical reflectivity during photoresist exposure (col.3 lines 10-16) **[claim 30]**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 26-27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin as applied to claim 25 above, and further in view of Graettinger et al.

(2002/0079581). Lin does not disclose contact openings down to and over edge of the patterned conducting layer within said open areas on opposite sides of said open areas, or a capacitor. However, Lin would look to one such as Graettinger for self-alignment and increased surface area because Graettinger discloses wherein at least two of said contact openings (p.2 para.42; p.5 para.73) are etched over said edge (p.3 para.47) of patterned conducting layer in said open areas on opposite sides (Fig.2 el.18A) of said

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open areas to allow for more relaxed alignment tolerances (p.3 para.47); and wherein a multiple of said contact openings (p.2 para.42; p.5 para.73) are formed in series that is skewed to said edge (p.3 para.47) of said patterned conducting layer on opposite sides (Fig.2 el.18A) of said open areas to allow for more relaxed alignment tolerances (p.3 para.47). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the open areas on opposite sides of Graettinger with the structure of Lin in order to provide self-alignment of the opening (p.3 para.47) **[claims 26, 27]**.

Graettinger also discloses wherein said patterned conducting layer is the top electrode of a capacitor (Fig.9). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the top electrode of a capacitor of Graettinger with the structure of Lin in order to increase the surface area between electrodes and the dielectric as compared to a flat plate capacitor **[claim 29]**.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nema O. Berezny whose telephone number is (571) 272-1686. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NB


CRAIG A. THOMPSON
PRIMARY EXAMINER